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NOAA Guidelines for Damage Assessment and Restoration or Marine Birds (DRAFT)

THIS IS A DRAFT AND WILL BE REPLACED BY THE FINAL PRODUCT

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Section I- Introduction

A. Background

Marine bird populations are an integral component of the marine ecosystem and are commonly injured in oil spills or hazardous material releases. Such injuries can occur as direct mortalities or indirectly through habitat degradation, lost reproductive success, and/or contaminated food supplies. As upper trophic level feeders, marine birds rely on a healthy marine environment to provide the prey base necessary for reproduction, migration and general maintenance. Marine bird populations like other elements of the marine ecosystem are an integral "part of the whole". Therefore they affect and are affected by all changes in this complicated and delicate ecosystem.

Maintaining healthy populations of marine birds provides multiple human and ecological benefits. Marine birds are a major attraction to many coastal areas (French and French 1989). Seabird guano production in and around colony sites provides nutrient input that increases primary production, and increases production in benthic communities including seagrasses (Wootton 1991, Kenworthy and Swartzchild pers. comm.,

Wainright et. al. 1998, Palomo et. al. 1999). In addition, guano is habitat for other species, and a natural source of fuel (Ross and Randall 1990, Heezik and Seddon 1997). Fishermen have traditionally used feeding seabirds to locate aggregations of fish in the open ocean (Furness and Monaghan 1987). Due to their location at the top of the food chain, many marine birds can provide valuable information regarding the health of other aspects of the marine environment (Furness and Monaghan 1987, Cairns 1987, 1992). Unfortunately, continual damage through oil and chemical pollution threatens the persistence of this invaluable marine resource (Fry et. al. 1986, Eppley et. al. 1990, Burger 1994, Nur et. al. 1997, Anders 1997, 1999).

As a trustee for the Nation's coastal and marine resources, NOAA has the responsibility of ensuring the public and itself that in the event of an oil spill or hazardous chemical release, the most effective and efficient damage assessment and restoration procedures are used. This responsibility is outlined under several different legislative authorities. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP)(40 CFR Part 300), mandated under OPA and CERCLA, gives NOAA, through the Secretary of Commerce, the responsibility of trusteeship for "natural resources, managed or controlled by other federal agencies, that are found under or using waters navigable by deep draft vessels, tidally influenced waters, or waters of the contiguous zone, the exclusive economic zone, and the outer continental shelf." The NCP clearly mandates cooperation with other agencies when it states: "Before the Secretary takes an action under the management or control of another federal agency, he shall, whenever practicable, seek to obtain the concurrence of that other federal agency." Under OPA, NOAA sits with other trustee agencies on Trustee Councils that have the responsibility of ensuring that appropriate damage assessments are conducted and that the public is compensated for the loss. NOAA's role in marine bird damage assessment and restoration is most direct in Marine Sanctuaries where, under the National Marine Sanctuaries Act (NMSA) NOAA has responsibility for the designation and management of these protected marine areas.

In general, injury assessment and restoration within NOAA are accomplished through the NOAA Damage Assessment and Restoration Program (DARP). However, in the area of marine birds, NOAA generally relies on the expertise of the U.S. Fish and Wildlife Service (FWS), U.S. Geological Survey (USGS), a state agency, or a contractor recommended by the Department of Interior (DOI). Given that the "marine bird expertise" within the government is concentrated in DOI, this seems like a logical and practical solution. However, NOAA's limited ability to provide an adequate level of support to other agencies may slow down the process of damage assessment and restoration or encourage a breakdown of communication. In light of NOAA's trustee responsibilities and the difficulties associated with marine bird damage assessment and restoration, NOAA is taking steps to increase the level of marine bird expertise within the agency.

NOAA does not expect to duplicate the expertise of other agencies but will work to give its own employees adequate background to feel confident working on marine bird issues and assisting other agencies in the area of marine bird damage assessment and restoration. As the importance of an ecosystem-wide approach becomes more widely accepted, NOAA recognizes that moving toward more toward more efficient and accurate damage assessment and restoration techniques will require, among other things, more cooperation between agencies and more consistency between regions. With its increased expertise, NOAA plans to improve communication with other agencies,
improve its ability to critically evaluate damage assessment reports and restoration plans and confidently defend trustee council decisions.

This guidance is designed to give NOAA employees the necessary background and expertise contacts to obtain information on marine birds in a useful and efficient manner, and to provide recommendations to NOAA personnel for selecting consultants to assist with casework.

The NOAA Guidelines for Damage Assessment and Restoration of Marine Birds is subject to comprehensive annual review and revision that will be initiated and coordinated by the NOAA/NMFS Office of Habitat Conservation. Request for specific changes or revisions requiring immediate attention should be brought to the attention of Jennifer Boyce, NOAA Restoration Center Office of Habitat

Conservation in Long Beach, CA (Jennifer.Boyce@NOAA.GOV) or Russell Bellmer, NOAA Restoration Center Office of Habitat Conservation in Silver Spring, MD (Russell.Bellmer@NOAA.GOV).

B. Scope of NOAA's Guidance for NRDA of Marine Birds

The guidance is intended to facilitate consistency among all regions of the United States in the area of marine bird damage assessment and restoration. The scope of the guidance will therefore include events occurring under the jurisdiction of all coastal regions of the United States, including Alaska, Puerto Rico, Guam, American Samoa and Hawaii. This includes events occurring in or under "water navigable by deep draft vessels, tidally influenced waters, or waters of the contiguous zone, the exclusive economic zone, and the outer continental shelf" and events occurring in NOAA's National Marine Sanctuaries.

For purposes of this document, the term "marine bird" will refer to seabirds, sea ducks, and shorebirds. These general categories encomp ass birds in nine orders. The following orders are represented: Pocicipediformes, Pelecaniformes, Ciconiiformes, Phonicopteriformes, Anseriformes, Gruiformes, Charadriiformes, Gaviiformes, and Procellariiformes.

This guidance addresses all injuries subject to natural resource damage assessment legislation. Relevant statutory authorities for NRDA are listed and summarized in Section III. Major legislation authorizing the Damage Assessment and Restoration Program (DARP) activities include: the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) (42 U.S.C. 9601 et seq); the National Marine Sanctuaries Act (NMSA) (16 U.S.C. 1431 et seq.), the Oil Pollution Act of 1990 (OPA) (33 U.S.C. 2701-2761); and the Clean Water Act (CWA) (33 U.S.C. 1251 et seq.). Injury events included under such legislation include oil spills (OPA) and hazardous material releases (CERCLA).

The NOAA Guidelines for NRDA of Marine Birds addresses both injury assessment and restoration phases of the DARP process. As a federal trustee for marine resources, NOAA has the responsibility of ensuring that the DARP process for marine birds meets the program goals of restoring the resource that was injured by the release of oil or hazardous substances and obtaining compensation for the interim losses. This includes ecological losses in addition to public use losses, such as bird viewing, or in the case of ducks, hunting.

Section II. Background Information

A. The Status of Marine Bird Injury Assessment

Background: The NRDA regulations focus injury assessment on the determination of lost natural resources, or lost services in two areas: human and ecological. As defined in OPA and CERCLA (33 U.S.C. 2701(20) and 43 CFR, subtitle A, part 11, § 11.14), natural resources include land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States (including the resources of the Exclusive Economic Zone) or any foreign government. Under both OPA and CERCLA, services are defined as "functions performed by a natural resource for the benefit of another natural resource and or the public."(OPA regulations § 990.30, 43 CFR, subtitle A, part 11, § 11.14) Human services are "the human uses of natural resources, or functions of resources, that provide value to the public, and include fishing, hunting, nature photography, and education." Ecological services are "the physical, chemical, or biological functions that one natural resource provides for another, such as provisioning of food, protection from predation, and nesting habitat" (15 CFR, part 990, Huguenin et. al. 1996). The injury assessment phase of the DARP process has the goal of determining and quantifying injury to natural resources or the losses of the above stated services. While methods to achieve this goal have improved over the past decade, today's injury assessments for marine birds are often far from precise.

Oil spill-related injuries to marine birds, which can be quantified as lost natural resources and lost human or ecological services, generally fall into six categories (e.g., Bourne 1970, Butler et. al. 1988, Burger 1994, Irons 1996, Sharp et. al. 1996, Anders 1999):

1. Direct oiling of adults and young, including direct ingestion of oil;
2. Transfer of oil from adults to young and eggs;
3. Indirect poisoning from feeding on contaminated fish and/or feeding contaminated fish to young (poisoning can result in non-lethal damage to embryos and young, damage to female reproductive systems, etc.);
4. Decreased or lost food supply;
5. Lost habitat; and
6. Lost future generations due to the lag time between loss and restoration of breeding individuals.

Injury to birds from hazardous material releases generally takes the form of a poisoned food source, decrease in food supply, or habitat degradation. Toxic materials remain in the environment for long periods of time and are transferred up the food chain. Seabirds are top trophic level feeders and therefore are highly susceptible to damage from hazardous material releases. Toxins can cause a variety of injuries ranging from death to reduced reproductive output (Fry 1981, Risenbrough 1986, Nisbet 1994).

In oil spills and hazardous material releases, the long-term damage to bird populations depends upon a multitude of life history factors, as well as current population status. The type and probability of injury are highly variable and depend upon the specific behavioral and life history characteristics of the species. For example, auks, which undergo flightless periods during molt, may be more vulnerable to direct oiling than terns and gulls which undergo a more continuous molt and maintain flight abilities. Feeding habits and habitat also may affect the nature and risk of oiling for different species. Alcids, for example, have been cited to be highly vulnerable to oiling, due in part to their pursuit-diving feeding technique and habit of forming groups and "roosting" on the water. (King and Sanger 1979, Seip et. al. 1991, Wiese and Pierre 1999).

Approaches: Over the past decade, much effort has been made to increase the cost effectiveness and accuracy of natural resource damage assessment. Following the Exxon Valdez incident, the NCP was updated, modeling techniques were refined and a myriad of studies were initiated to improve assessments and the accuracy of measurement methods (Ehler 1990, Ford et. al. 1996, USFWS 1997, Wright and Duffy 1999). At present, the major procedural approaches to determining the injury to marine birds are Type A assessment techniques, simplified models that require minimal fieldwork and are used for small spills where scientific documentation is either not cost effective or impossible to carry out; or Type B assessment techniques. Type B techniques rely upon site specific field studies that can be conducted over extended periods and are likely to be costly in comparison to the Type A assessments. Type B assessments are conducted for incidents involving complex situations that occur over time (NOAA 1997a).

More specifically, marine bird injuries are generally addressed by use of the Natural Resource Damage Assessment Model for Coastal and Marine Environments (NRDAM/CME) (French and French 1989, and French et. al. 1996a,b) and other related models, or by the use of models based on body counts and estimated sampling efficiency. NRDAM/CME models estimate the number of oiled birds using the trajectory of the oil slick and estimates of the pre-spill bird abundance. Methods using body counts and estimates of sampling efficiency range from the those using Oil Vulnerability Indexes, which estimate probability of oiling for a particular species, to those using carcass trajectory modeling (i.e. the incorporation of sinking rates, scavenging rates, etc. into models) (King and Sanger 1979, Seip 1991, Williams, et. al. 1994, Rosenberger and Burlington 1990, Ford et. al. 1996).

In some cases, additional population modeling is done to evaluate intergenerational losses. More specific modeling techniques are being used in some areas of the country. However, due to limited funds and manpower, this more sophisticated approach is by no means universal.

II. The Status of Marine Bird Restoration

Background and approaches: Under NOAA regulations, restoration is defined as any action (or alternative), or combination of alternatives to restore, rehabilitate, replace, or
acquire the equivalent of injured natural resources and services (NOAA 1997b). Success can be measured by the ability of the habitat to support fish and wildlife populations (Pinit and Bellmer 2000).

"Restoration actions are described in two categories:

> a. Primary Restoration, which is any action, including natural recovery, that returns injured natural resources and services to baseline; and
> b. Compensatory Restoration, which is the compensation for interim losses of natural resources that occur from the date of the incident to recovery." (OPA regulations at §990.30)

Restoration of seabird populations requires a very broad definition. Direct restoration of an extirpated colony may be selected as the most appropriate way to approach seabird injuries at one site, while other more indirect techniques (such as the protection of nesting colonies from human disturbance) may be more effective in other situations (Warheit et al. 1997)

Restoration planning can be broken down into five categories:

1) development of restoration alternatives,
2) scaling of restoration alternatives,
3) selection of preferred restoration alternatives
4) development of restoration plan
5) preferred alternative implementation.

These steps are generally conducted in coordination with the potentially responsible party (PRP). Under OPA, the development of a restoration planning document is required and public comment on restoration alternatives must be solicited. The NEPA process is also followed allowing for the integration of public participation into the process. If the Natural Resource Trustees and the PRP reach an agreement on restoration measures, settlement can occur without litigation. However, if the PRP declines to settle, NRDA laws authorize trustees to bring a civil action for damages in federal court. If it is an OPA case, the claim also may be presented to the Oil Spill Liability Trust Fund (FUND) to obtain restoration funding.

Restoration of injured marine bird populations is a fairly new field and, except in a few cases (Kress 1978, 1983, 1988, Parker 1997, 1998, 1999), data on the success of the techniques is limited. In general, restoration approaches most commonly recommended for marine bird restoration can be summarized under nine general categories:

Direct restoration:

1. Restoration of breeding habitat (e.g. removal of introdued predators or breeding space competitors such as gulls)
2. Social facilitation
3. Restoration of feeding grounds
4. Captive breeding projects to increase population sizes
5. Rehabilitation of injured adult birds

6. Application of new techniques for restoration

Indirect restoration (such actions are accepted in lieu of direct restoration because they function to enhance populations, increase database information and heighten awareness):

6. Monitoring and protection of marine bird colonies
7. Habitat acquisition for conservation
8. Public awareness training for conservation of bird populations and nesting habitats
9. Projects addressing other factors affecting mortality such as by-catch mortality, light and noise during mating and nesting, disturbances caused by recreational activities, etc.

According to the NOAA restoration planning guidelines (15 CFR Part 990), the identification of restoration alternatives is based on several criteria including:

* Extent to which the alternative is expected to meet the trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses;
* The alternatives' likelihood of success;
* Extent to which the alternative will prevent future injury as a result of the incident, and avoid collateral injury as a result of implementing the alternative;
* Extent to which the alternative benefits more than one natural resource and/or service, and the effect of the alternative on public health and safety; and
* Cost to implement the alternative (this includes: implementation, operation and maintenance, oversight, and monitoring)

Due to the limited historical data available for many marine bird populations and the relatively limited information on the success of previously implemented marine bird restoration projects, it is often difficult to accurately evaluate injury to marine birds. In reality, the approach to restoration generally depends on a number of factors, including the nature of the injury, the diversity of species injured, the information available on the species/populations injured, or the existence of an intact monitoring program.

Section III- Statutory Background

The following are summaries of the statutes that are directly or indirectly addressed in this policy which provide the legislative authority for the DARP. Not all of these authorities relate directly to marine birds, but they have been included because of their potential applicability to the general DARP. Those legal authorities most closely related to marine bird damage assessment and restoration are listed first. This information was taken from NOAA's DARP web page updated April 1999 and the FWS' Fish and Wildlife Laws, Regs, Policies, and Congressional Information web page. For more information see http://www.darp.noaa.gov/legislat.htm and http://www.fws.gov/laws.

A. Oil Pollution Act of (OPA) 1990
33 U.S.C. 2701-2761.

This is the principle statute governing oil spills into the nation's waterways. The Oil Pollution Act (OPA) was passed in the wake of the Exxon Valdez oil spill in March of 1989. The statute establishes liability and limitations on liability for damages resulting from oil pollution, and establishes a fund for the payment of compensation for such damages. In conjunction with CERCLA, it mandates a National Oil and Hazardous Substances Pollution Contingency Plan (NCP) to provide the organizational structure and procedures to prepare for and respond to discharges of oil and releases of hazardous substances, pollutants, and contaminants. Under the NCP, NOAA's responsibility for marine resources includes marine birds. It requires preparation of spill prevention and response plans by coastal facilities, vessels, and certain geographic regions. OPA amended the Clean Water Act and includes the Oil Terminal and Oil Tanker Environmental Oversight and Monitoring Act of 1990.

B. Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA or Superfund)
42. U.S.C. 9601 et seq.
This is the principle statute governing the cleanup of sites contaminated with hazardous substances and responses to spills of those substances. The statute establishes liability for site cleanup, prescribes a procedure for identifying and ranking contaminated sites, provides funding for site cleanups, reduces uncontrolled releases of hazardous substances, establishes cleanup procedures that provide protection for humans and the environment, and restores injured natural resources through provisions administered by the natural resource trustees. In conjunction with OPA, it mandates a National Oil and Hazardous Substances Pollution Contingency Plan (NCP) to provide the organizational structure and procedures to prepare and respond to discharges of oil and releases of hazardous substances, pollutants, and contaminants. The statute was amended by the Superfund Amendment and Reauthorization Act (SARA) in 1986, which adds extensive public "right-to-know" and emergency planning requirements, establishes a fund for leaking underground storage tanks, and imposes worker safety requirements for hazardous materials.

C. National Marine Sanctuaries Ac (NMSA)
16 U.S.C. 1431 et seq.

This is the principle statute governing the designation and management of protected marine areas of special significance. The statute requires NOAA to designate National Marine Sanctuaries in accordance with specific guidelines and to develop and review management plans for these sites. It provides for the continuation of existing leases, licenses and other established rights in sanctuary areas and for the development of research and education programs. The statute also prohibits destruction, injury or loss of sanctuary resources and establishes liability for response costs and natural resource damages for injury to these resources. Under this Act NOAA's responsibility for natural resources that fall within the sanctuary includes the responsibility for marine birds. The NMSA was formerly referred to as Title III of the Marine Protection, Research and Sanctuaries Act of 1972.

D. Migratory Bird Treaty Act of 1918
16 USC 703 et seq.

The major decree of this Act is the establishment of a federal prohibition, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, kill, possess, offer for sale, sell, offer to purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird...or any part, nest, or egg of such bird."

E. Clean Water Act
33 U.S.C. 1251 et seq.

This is the principle statute governing water quality. The statute's goal is to end all discharges entirely and to restore, maintain and preserve the integrity of the nation's waters, with an interim goal of providing water that is both fishable and swimmable. The Act regulates both the direct and indirect discharge of pollutants into the nation's waters. It mandates permits for wastewater and storm water discharges, regulates publicly owned treatment works that treat municipal and industrial wastewater, requires states to establish site-specific water quality standards for navigable bodies of water, and regulates other activities that affect water quality, such as dredging and filling of wetlands. The Clean Water Act was enacted in 1977 as a series of amendments to the Federal Water Pollution Control Act of 1948.

F. Endangered Species Act (ESA)
16 U.S.C. 1531 et seq.

The ESA establishes a policy that all Federal departments and agencies seek to conserve endangered and threatened species and their habitats, and encourages such agencies to utilize their authorities to further these purposes. Under the Act, the Department of Commerce through NOAA and the Department of the Interior through the USFWS publish lists of endangered and threatened species. Section 7 of the Act requires that federal agencies and departments consult with these departments to minimize the effects of federal actions on endangered and threatened species. Prior to implementation of any project that may potentially affect an endangered or threatened species, the Trustees must conduct Section 7 consultations.

G. Fish and Wildlife Coordination Act (FWCA)
16 U.S.C. 661 et seq.

The FWCA requires that federal agencies consult with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and State wildlife agencies for activities that affect, control or modify waters of any stream or bodies of water, in order to minimize the adverse impacts of such actions on fish and wildlife resources and habitat. This consultation is generally incorporated into the process of complying with Section 404 of the Clean Water Act, NEPA or other federal permit, license or review requirements.

H. National Environmental Policy Act (NEPA)
42 U.S.C. 4321-4370d; 40 CFR Parts 1500-1508.

NEPA is the basic national charter for the protection of the environment. Its purpose is to "encourage productive and enjoyable harmony between man and the environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; and to enrich the understanding of the ecological systems and natural resources important to the Nation." The law requires the government to consider the consequences of major federal actions on human and natural aspects of the environment in order to minimize adverse impacts, when possible. Equally important, NEPA established a process of environmental review and public notification for federal planning and decision making.

Generally, when it is uncertain whether an action will have a significant effect, federal agencies will begin the NEPA planning process by preparing an Environmental Assessment (EA). The EA may undergo a public review and comment period. Federal agencies may then review the comments and make a determination. Depending on whether an impact is considered significant, an environmental impact statement (EIS) or a finding of no significance (FONSI) will be issued. The Trustees have integrated OPA restoration planning with the NEPA process to comply, in part, with those requirements. This integrated process allows the Trustees to meet the public involvement requirements of OPA and NEPA concurrently. Restoration plans and EAs or EISs are intended to accomplish partial NEPA compliance by summarizing the current environmental setting; describing the purpose and need for restoration action; identifying alternative actions; assessing the preferred actions' environmental consequences; and summarizing opportunities for public participation in the decision process. Project-specific NEPA

documents will need to be prepared for those proposed restoration projects not already analyzed in an environment assessment or environmental impact statement.

I. Anadromous Fish Conservation Act (AFCA)
16 U.S.C. 757a et seq.

The AFCA authorizes the Secretaries of Commerce and/or Interior to enter into cooperative agreements with the states for the conservation, development, and enhancement of the Nation's anadromous fishery resources. Pursuant to such agreements, the federal government may undertake studies and activities to restore, enhance, or manage anadromous fish, fish habitat, and passages. The Act authorizes federal grants to the states or other non-Federal entities to improve spawning areas, install fishways, construction fish protection devices and hatcheries, conduct research to improve management, and otherwise increase anadromous fish resources. The Trustees may be able to take advantage of the provisions and funding of AFCA in order to leverage anadromous fish restoration plans and projects.

J. Coastal Zone Management Act (CZMA)
16 U.S.C. 1451, et seq. 15 CFR Part 923

The goal of the CZMA is to preserve, protect, develop and, where possible, restore and enhance the nation's coastal resources. The federal government provides matching grants to states with federally-approved coastal management programs for the realization of these goals through the development and implementation of state coastal zone management programs. Most states have a federally-approved program. Section 1456 of the CZMA requires that any federal action inside or outside of the coastal zone that affects any land or water use or natural resources of the coastal zone shall be consistent, to the maximum extent practicable, with the enforceable policies of approved State management programs. It states that no federal license or permit may be granted without giving the State the opportunity to concur that the project is consistent with the State's coastal policies. The regulations outline the consistency procedures. Other provisions of CZMA provide for the development of special area management plans (SAMPs) for areas of the coastal zone of particular importance (16 USC 1456b(6)). In addition, Section 6217 of P.L. 101-508, codified at 16 USC 1455b, requires states with federally-approved CZM programs to develop programs for the control of coastal non-point pollution control. In order to comply with the CZMA, the Trustees intend to seek the concurrence of the State that their preferred projects are consistent to the maximum extent practicable with the enforceable policies of the state coastal program.

K. Park System Resource Protection Act
16 U.S.C.19jj

Public Law 101-337, Park System Resource Protection Act (16 U.S.C.19jj), requires the Secretary of the Interior to assess and monitor injuries to park system resources. The Act specifically allows the Secretary of the Interior to recover response costs and damages
from the responsible party causing the destruction, loss of or injury to park system resources. This Act provides that any monies recovered by the NPS may be used to reimburse the costs of response and damage assessment and to restore, replace or acquire the equivalent of the injured resources.

L. Rivers and Harbors Act
33 U.S.C. 401, et seq.

The Rivers and Harbors Act regulates development and use of the nation's navigable waterways. Section 10 of the Act prohibits unauthorized obstruction or alteration of navigable waters and vests the Corps with authority to regulate discharges of fill and other materials into such waters. Restoration actions that require Section 404 Clean Water Act permits are likely also to require permits under Section 10 of the Rivers and Harbors Act. However, a single permit usually serves for both. Therefore, the Trustees can ensure compliance with the Rivers and Harbors Act through the same mechanisms.

M. OTHER POTENTIALLY APPLICABLE LAWS AND REGULATIONS

This section lists additional federal laws that potentially affect NRDA and restoration activities. The statutes or their implementing regulations may require permits from federal or state permitting authorities.

Archaeological Resources Protection Act, 16 U.S.C. 470, et seq.
Bald Eagle Protection Act, 16 U.S.C. 668,668 note, 668a-668d
Clean Air Act, 42 U.S.C. 7401, et seq.
Emergency Wetlands Resources Act, 16 USC 3901.
Executive Order 11514- Protection and Enhancement of Environmental Quality
Executive Order 11990- Protection of Wetlands
Executive Order 11991- Relating to the Protection and Enhancement of Environmental Quality
Executive Order 12580- Superfund Implementation
Estuarine Protection Act, 16 USC 1221 et seq.
Federal Water Pollution Control Act, 33 USC 1321 et seq.
Marine Mammal Protection Act, 16 USC 1361 et seq.
Marine Protection, Research, and Sanctuaries Act, 33 USC 1401 et seq.
National Historic Preservation Act, 12 USC 470 et seq.
National Park Act of August 19, 1916 (Organic Act), 16 U.S.C. 1, et seq.

Section IV- Check List of Critical Factors to Consider in Marine Bird Damage Assessment and Restoration

The following checklist is intended to highlight major points to consider when conducting damage assessment and restoration activities for marine birds. For more information on any one of these points, please consult the references in Section VIII in this document.

___ The history of damage to this population (including effects of chronic pollution and small scale damages).
___ Species status locally, regionally, nationally and worldwide.
___ All relevant work on this species to date.
___ Life history characters if known:
-Age at 1st breeding;
-Longevity;
-Survival probabilities;
-Critical habitat (breeding demographics, wintering sites, migration); and
-Stopover sites (feeding).
___ Damage to prey-base:
It may be necessary to restore the prey-base to achieve restoration of the injured species.
___ Age structure of the population (if known)
___ Age structure of the injured birds (if known):
Restoration should be focused on the age classes lost.
___ Lost generations must be taken into consideration:
The loss of individual birds generally means loss of future generation in the lag time between injury and completion of restoration.
___ Design of monitoring plans:
Are there any studies, management, or restoration projects currently in progress?
Are monitoring plans designed in such a way that the information can be used to improve future management decisions regarding restoration?
Are monitoring plans designed in such a way that one can determine the success of the restoration project?
___ Value of research:

If research is implemented in support of direct restoration, is the research designed in such a way that it can be applied to damage assessment for new incidents?
Is research designed in such a way that the data collected is compatible with existing data
Is the research truly innovative (i.e. not duplicating studies done by universities or other agencies)?
___ Historical cases: Have other cases dealt with similar species or habitats?
If so, what was the outcome?
___ Nature of the injury:
Have all sources of injury been taken into consideration (i.e., has the damage assessment gone beyond acute mortality to long-term and indirect effects)?
___ Alternative approaches to direct restoration: Have alternative approaches been explored (i.e. addressing other sources of mortality such as by-catch mortality, human recreational disturbances, and/or predation)?
___ The value of integrated projects: If the project is integrated with restorations for other species, is there a clear and definable benefit to birds?
___ Impacts of restoration actions on other living marine resources
How will the project integrate with other ongoing management actions occurring in the area?

Section V- Recommendations

A. Restoration in Contaminated Areas

NOAA recognizes that restoring birds to contaminated areas may result in detrimental effects to the birds and counteract restoration actions. Therefore, we recommend the following actions be performed before choosing to restore marine birds to contaminated areas:

* alternative sites are investigated and a clear explanation is given as to why these sites are unsuitable;
* potential damages to the birds due to the contamination are evaluated and incorporated into the restoration plan and recovery time (These damages are considered when the value of the restoration plan is weighted against other restoration alternatives); and
* careful monitoring of restored populations is built into the restoration plan and rigorously collected data is used to further the goals of restoration science.

A. Rehabilitation

Many studies have shown that the survival rates of rehabilitated birds are considerably lower than control birds. In addition, rehabilitated birds may exhibit lower reproductive success than control birds (see Boyce (unpublished) for a review of this literature-request can be made to Jennifer.Boyce@noaa.gov, and Section VI of this document). In light of this and historical cases, NOAA prefers that rehabilitation be funded through response costs rather than restoration funds. Restoration funds should be directed at those activities that have the greatest probability of restoring the injured resource.

B. Selecting a Contractor

When selecting a contractor to assist in DARP activities for marine birds, we recommend looking for individuals with experience in the following areas:

* marine bird behavior;
* marine bird life history;
* demography as it applies to marine birds;
* ecological modeling as it applies to marine birds;
* habitat restoration as it applies to marine birds;
* a broad range of bird species;
* general ecology;
* statistical applications;

* NOAA trust resources;
* ecosystem and food web interactions;
* damage assessment procedures mandated by CERCLA and OPA;
* working on interdisciplinary teams.

Experience with DARP activities that are not related to marine birds does not constitute qualification in the specific area of marine bird DARP. All of the individuals listed in section VII. B. have a wide range of experience, therefore the list constitutes a good starting point for selection.

D. Preventative Measures:

Recently, the use of bird deterrents has been suggested as a method to deter birds from oil slicks and prevent oiling. While such techniques are still being tested, they offer potential as a cost effective and ecologically safe way of reducing injury to marine birds (see Section VI-Preventative Measures for a listing of references on this topic).

E. Living Marine Resources

NOAA emphasizes the need for an ecosystem perspective when developing the restoration phase. NOAA stresses that restoration projects should be designed to benefit a multitude of living marine resources. NOAA encourages restoration planners to consider the impacts of restoration actions to both marine birds and other marine resources and to avoid situations where restoration actions are working at cross-purposes with on-going management actions.

Section VI - Bibliography

This section includes literature references related to damage assessment and restoration of marine birds. This is a sampling of the available literature and is not intended to be considered a complete listing. For case specific reports contact agency representatives listed in section VII.

A. General Marine Bird

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Section VII- Contact List for Information Related to Damage Assessment and Restoration of Marine Birds

The following contact list includes employees of trustee agencies, contractors, academics and others who can be considered experts in the area of marine birds and/or damage assessment and restoration. Additional information is provided for those individuals with specific bird related experience. This list is a sampling of such experts and is not to be considered a complete listing of such individuals. If information is needed on an expert on a specific bird species, the most direct way to obtain this information would be to send mail to the seabird list-server (seabird@uct.ac.za). This list-server is a forum for marine bird experts throughout the world to obtain information and contacts and to discuss related issues. Members of this list are always willing to offer assistance on finding information or relevant contacts.

A. Trustee Agency Personnel

Section VIII- Scientific Societies for Marine Bird Research

The following is a list of scientific societies with a focus on marine bird research. For the North American societies the web page is listed. For up-to-date information on current events related to marine birds and for information on organizations outside of North America visit http://www.nmnh.si.edu/BIRDNET/index.html

A. North American Societies:

American Ornithologists' Union
http://pica.wru.umt.edu/AOU/AOU.html
Association of Field Ornithologists
http://www.afonet.org/index.html
CIPAMEX, Sección Mexicana del Consejo Internacional para la Preservación de las ves
Not available
Cooper Ornithological Society
http://www.cooper.org/
Pacific Seabird Group
http://www.nmnh.si.edu/BIRDNET/PacBirds/index.html
Raptor Research Foundation
http://biology.boisestate.edu/raptor/
Society of Canadian Ornithologists | Société des Ornithologistes du Canada
http://www.nmnh.si.edu/BIRDNET/SocCanOrn/index.html
Society for Caribbean Ornithology
http://www.nmnh.si.edu/BIRDNET/SCO/index.html
The Waterbird Society
http://www.nmnh.si.edu/BIRDNET/CWS/index.html
Wilson Ornithological Society
http://www.ummz.lsa.umich.edu/birds/wos.html

B. Societies outside of North America:

Royal Australasian Ornithologists' Union
African Bird Club
British Ornithological Trust
Oriental Bird Club
Wild Bird Society of the Republic of China (Taiwan)
Wild Bird Society of Japan
Western Hemisphere Shorebird Reserve Network (Red Hemisferica de Reservas de Aves Playeras)
Neotropical Bird Club, based in the United Kingdom
Wild Bird Society of Japan

Appendix A- Literature Cited

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